Blue Mountains Elk Herd: At-Risk Assessment Overview

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Washington Department of FISH and WILDLIFE

Acknowledgements

- **William Moore**, WDFW Ungulate Specialist
- **Melia DeVivo**, WDFW Ungulate Research Scientist
- **Brian Kertson**, WDFW Carnivore Research Scientist
- **Richard Beausoleil**, WDFW Statewide Bear and Cougar Specialist
- **Paul Wik**, WDFW District Wildlife Biologist
- **Mark Vekasy**, WDFW Assistant District Wildlife Biologist
- **Benjamin Maletzke**, WDFW Wolf Specialist
- **Brock Hoenes**, WDFW Region 2 Director (former Ungulate Section Manager)
- **Stephanie Simek**, WDFW Carnivore Section Manager
- **Scott Peckham**, CTUIR Wildlife Biologist

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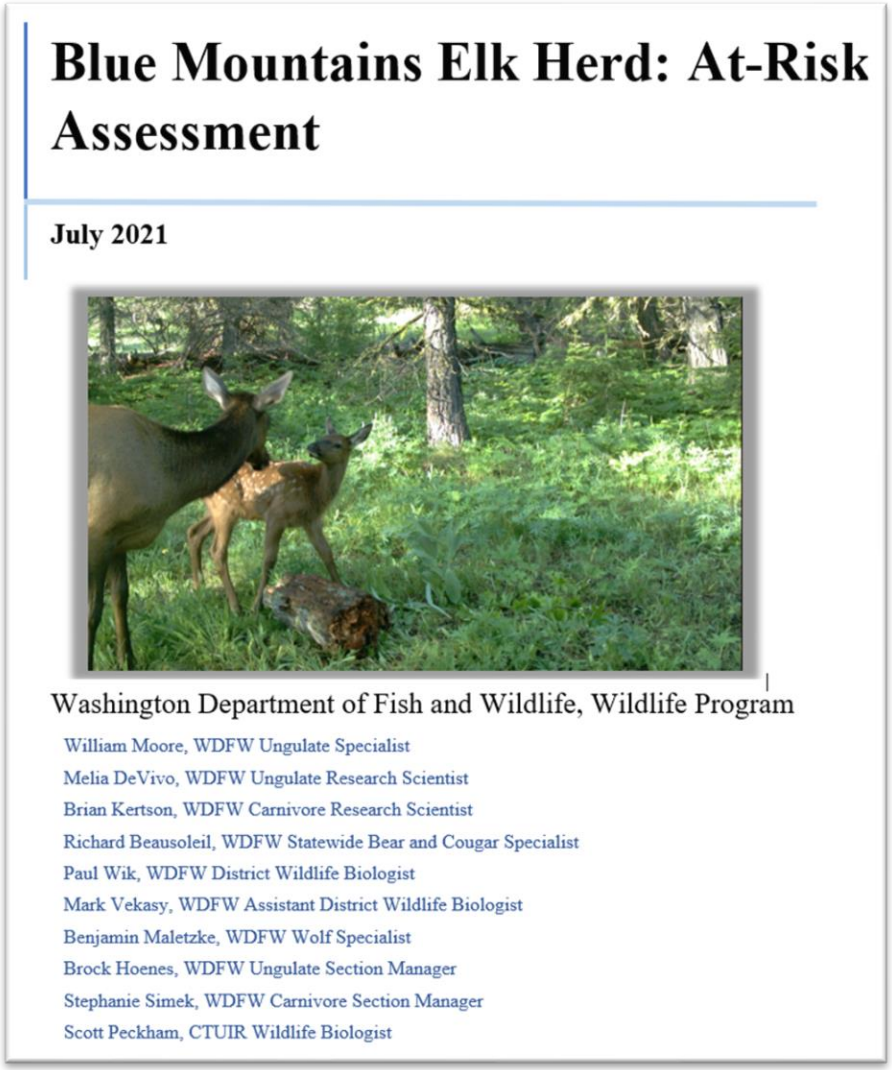

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July 2021

Washington Department of Fish and Wildlife, Wildlife Program

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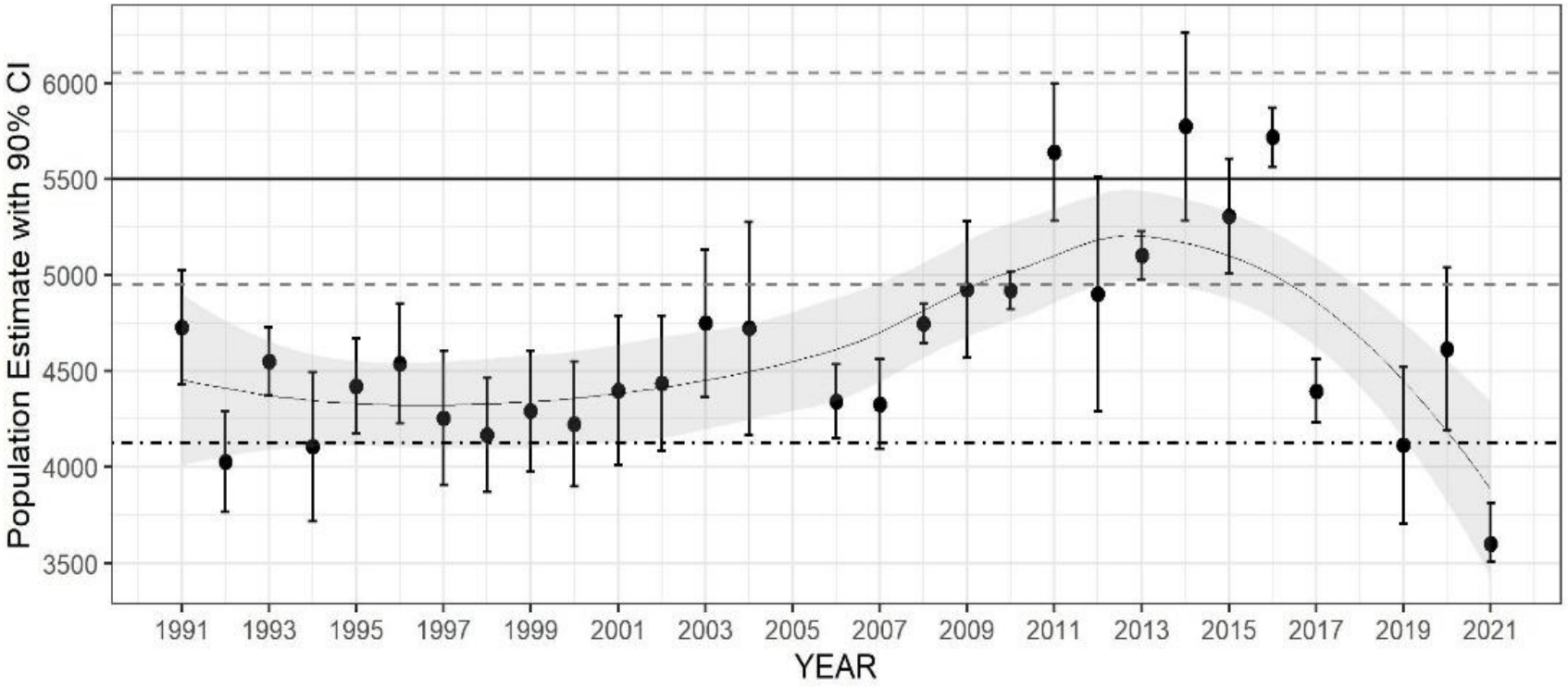
Problem Statement

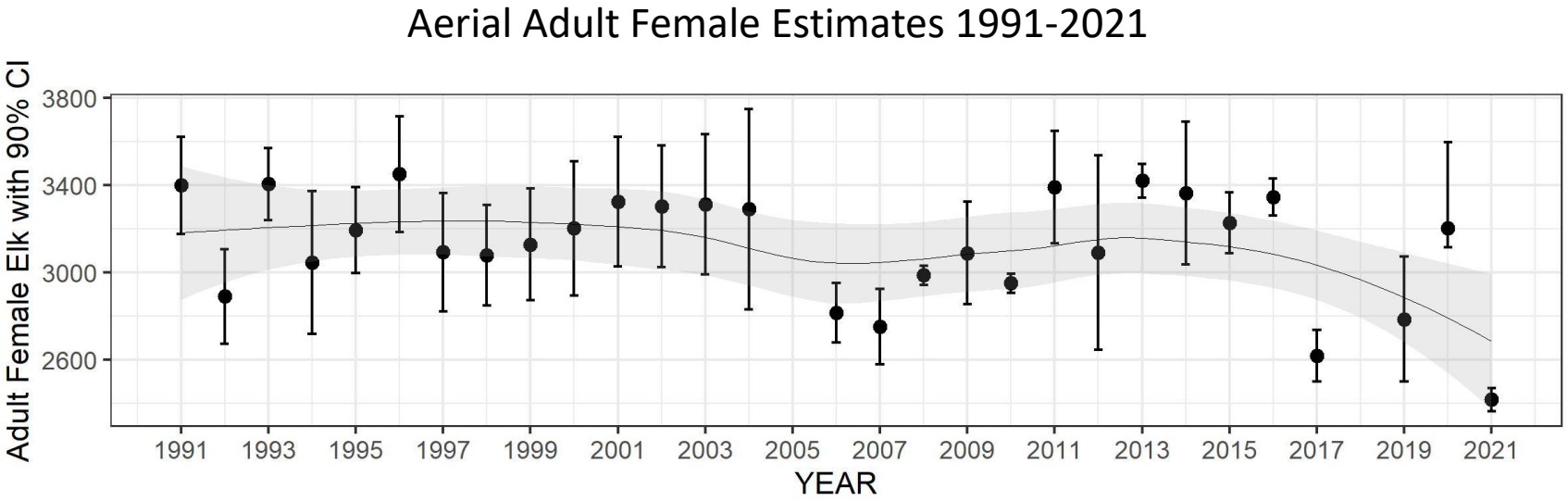
- Population declined by ~20% 2015-2017
- Population has failed to rebound despite reductions in cow harvest
  - Estimated at 35% below objective (3,600 elk) in 2021
- Since 2017, population calf recruitment ratios are below replacement levels

Problem Statement

Aerial Population Estimates 1991-2021

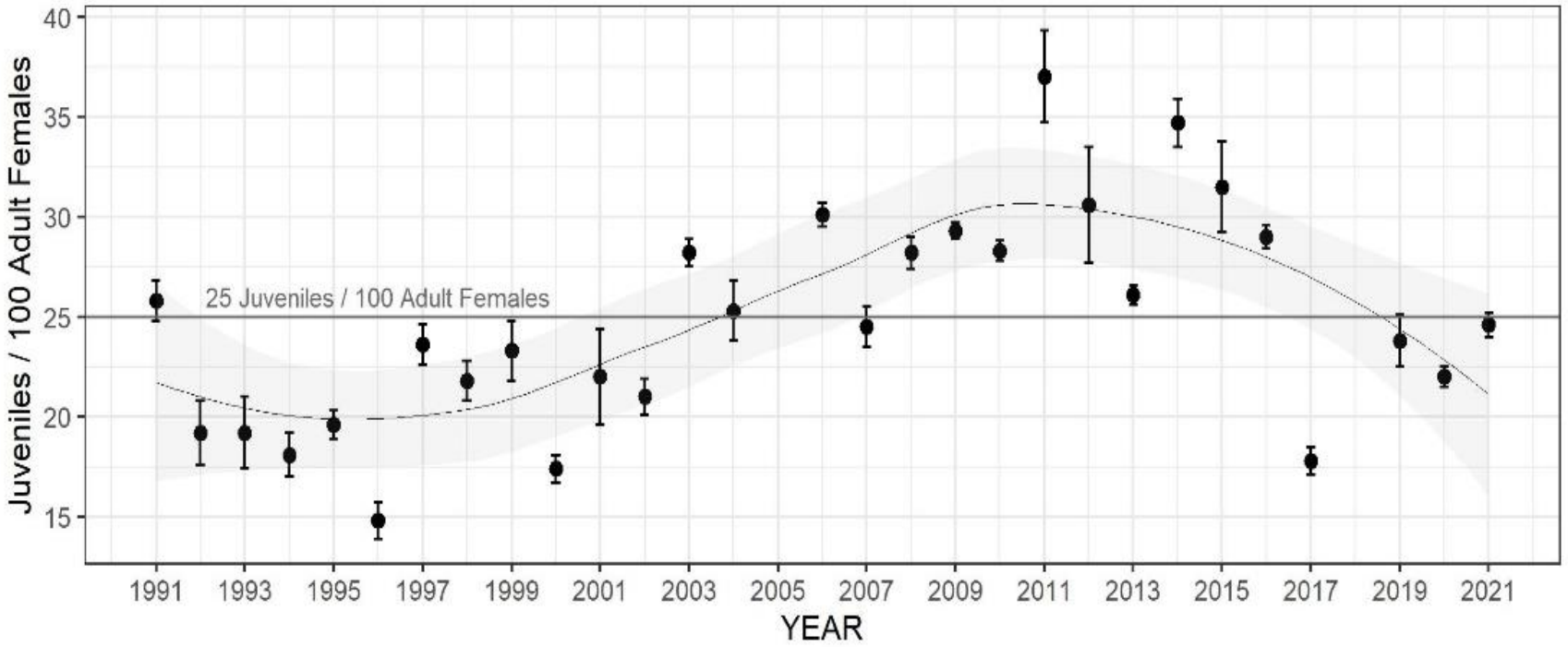


PROBLEM STATEMENT



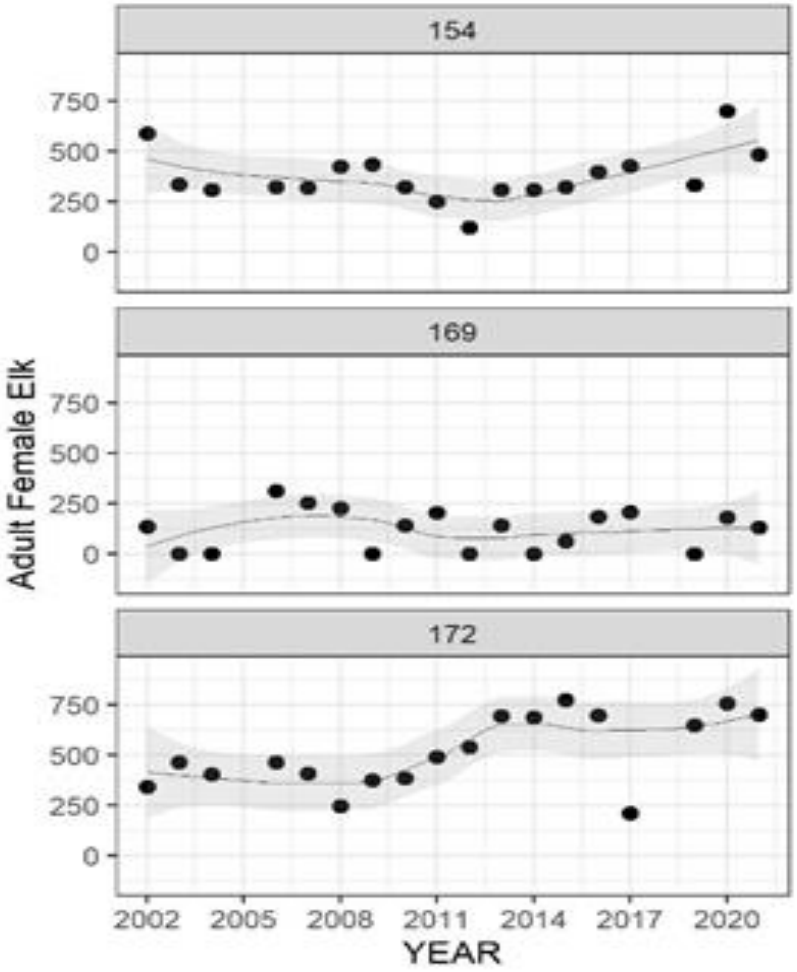
PROBLEM STATEMENT

Aerial Recruitment Ratio Estimates 1991-2021

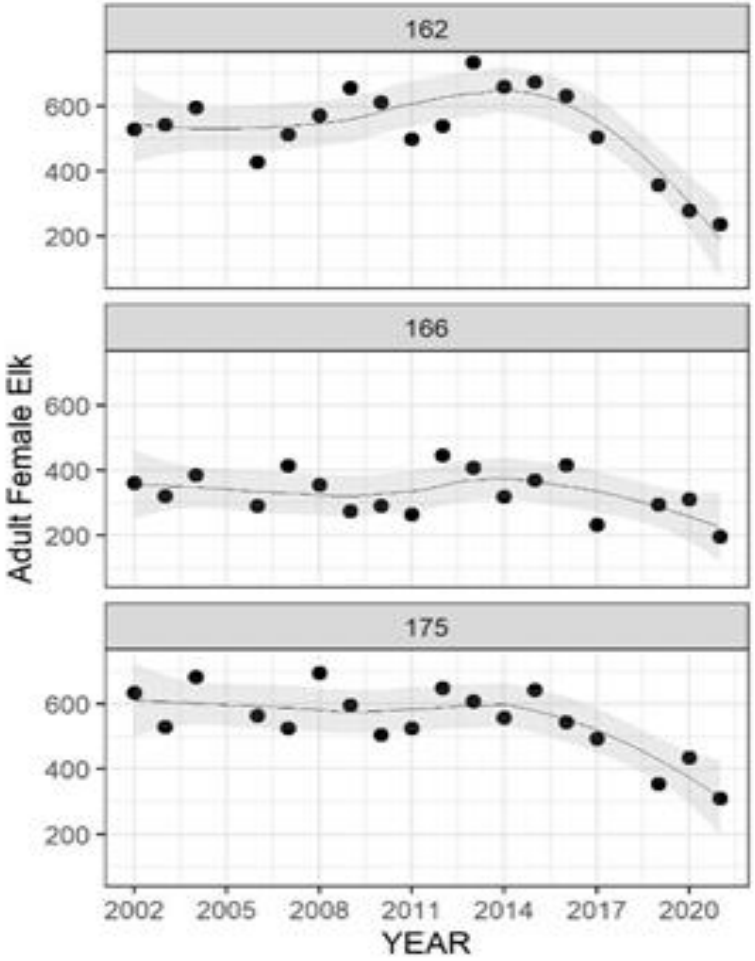


Adult Females

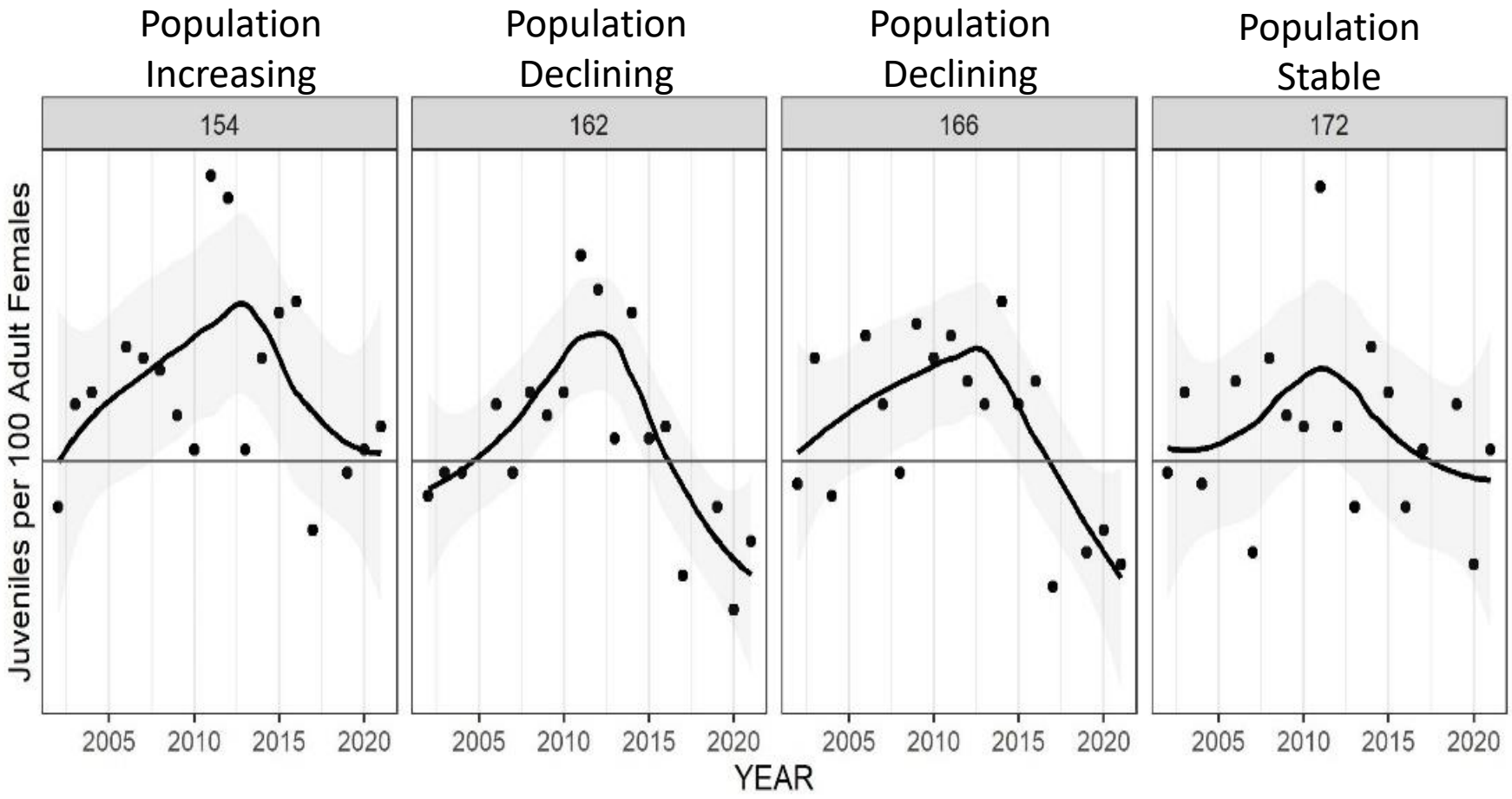
Population Stable/Increasing



Population Declining



Calf Recruitment

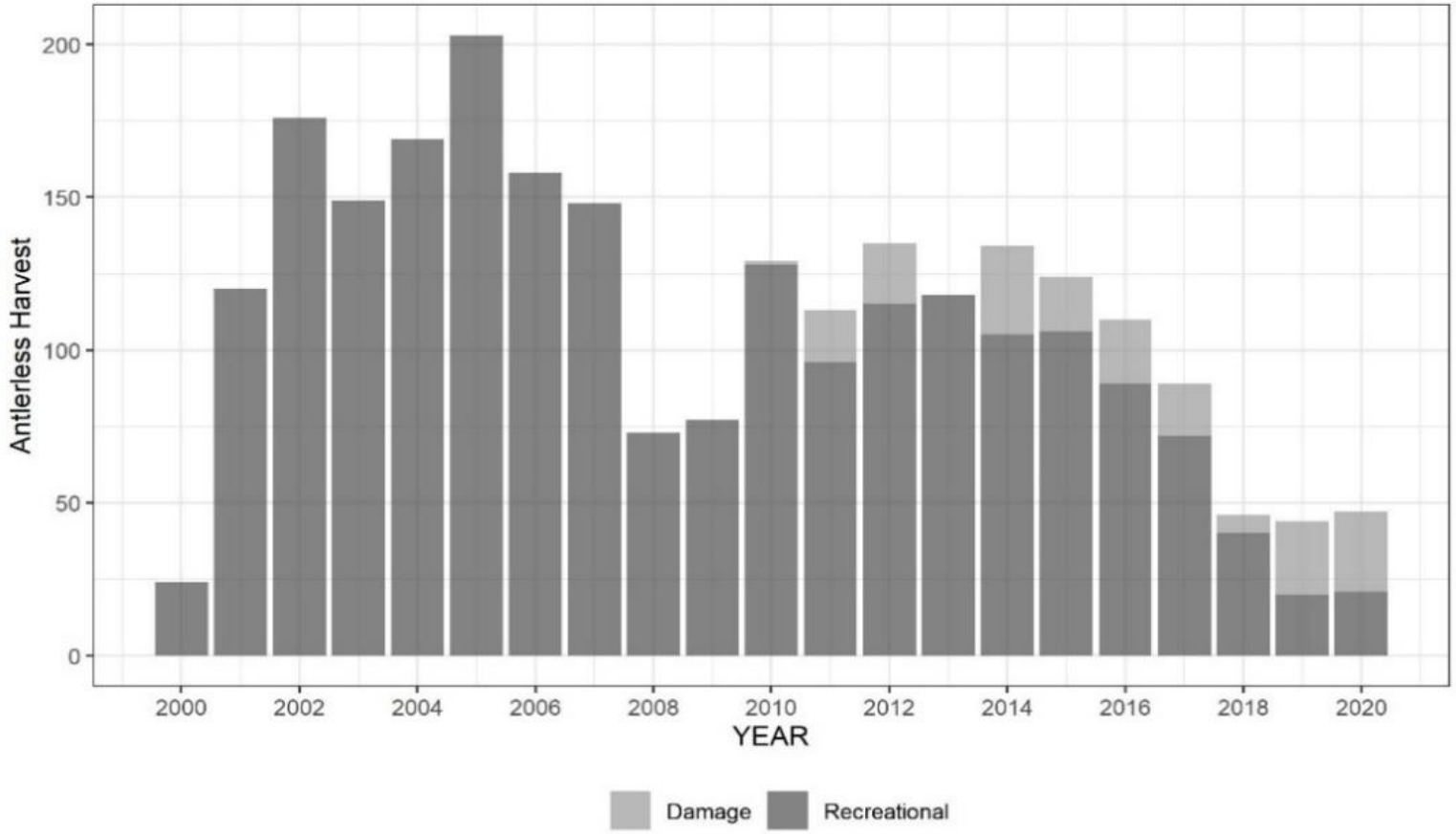


Elk Survival

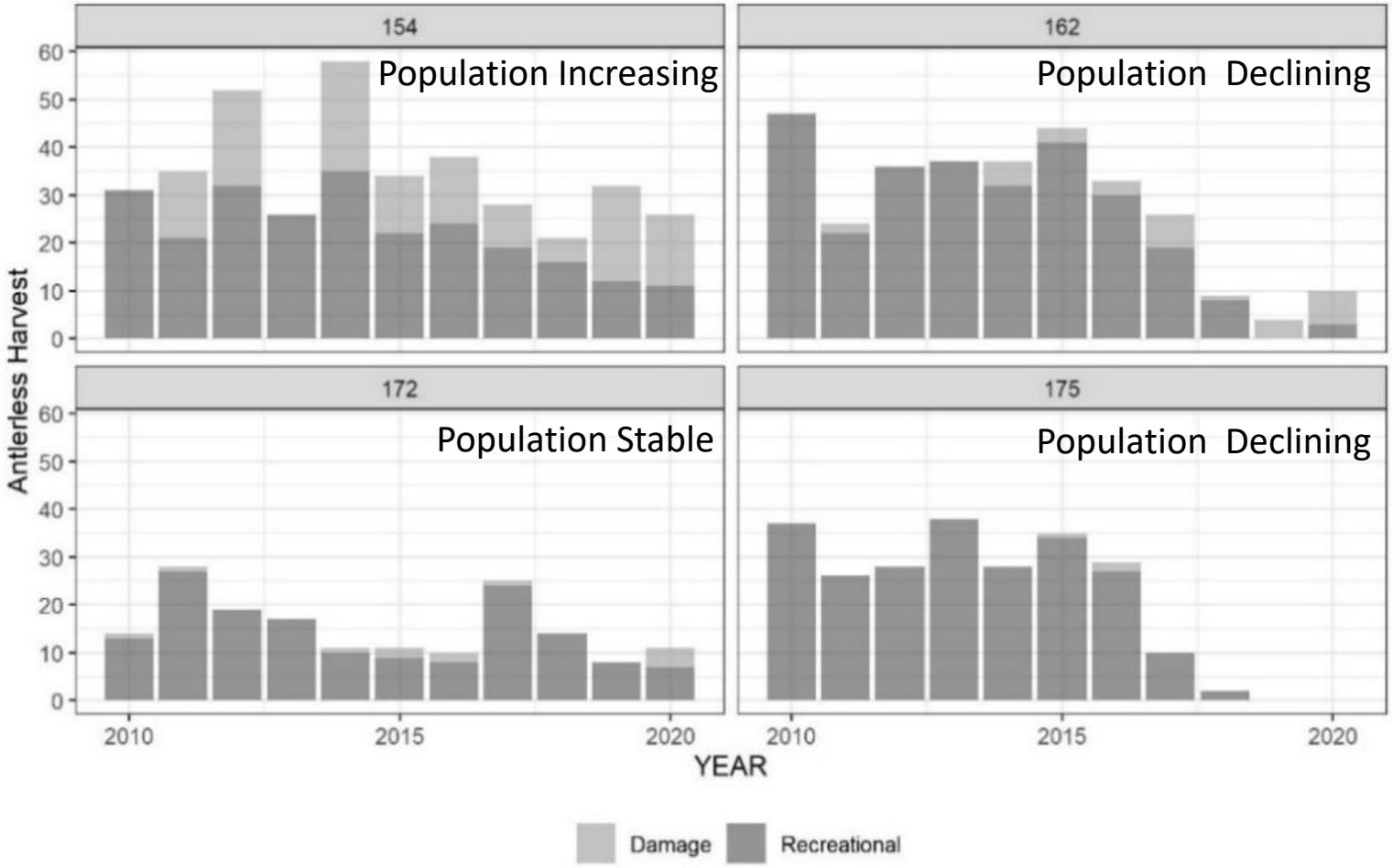
- Literature review
- Focuses on WDFW's effort to reduce antlerless harvest
  - Recreational vs. Damage
  - Has not resulted in population growth or stability in some GMUs
- Trends in cow numbers and calf recruitment differ among GMUs
- Cite findings of McCorquodale et al. (2011) & Myers (1999)
  - Adult female survival 0.81 (0.70-0.88) from 2003-2006
  - Calf survival 0.47 (range = 0.41-0.55) from 1993-1997

Antlerless Harvest

- Decreased to lowest levels in 20 years

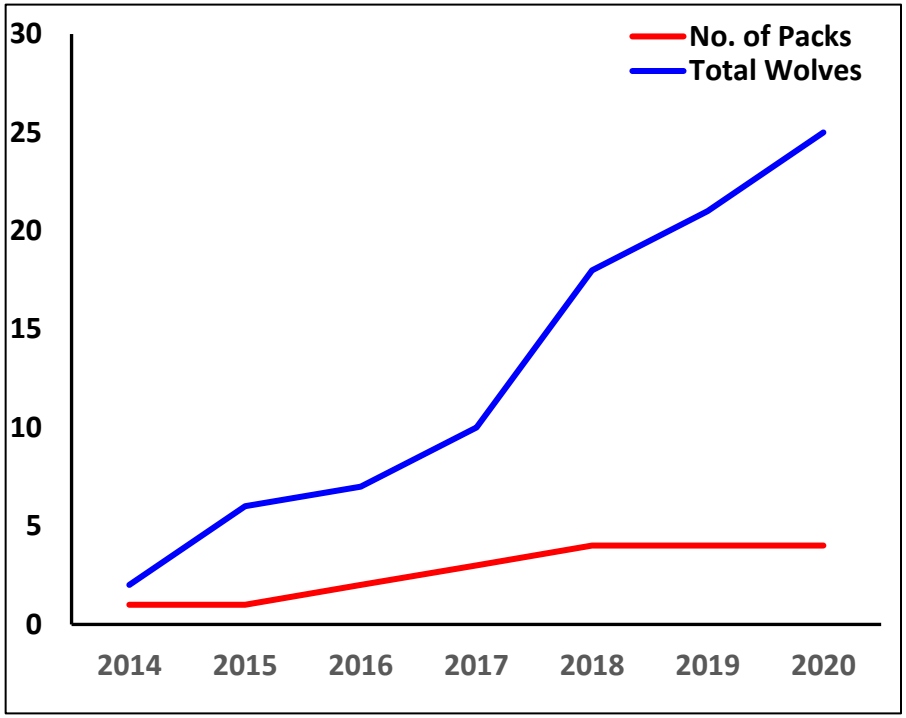


Antlerless Harvest



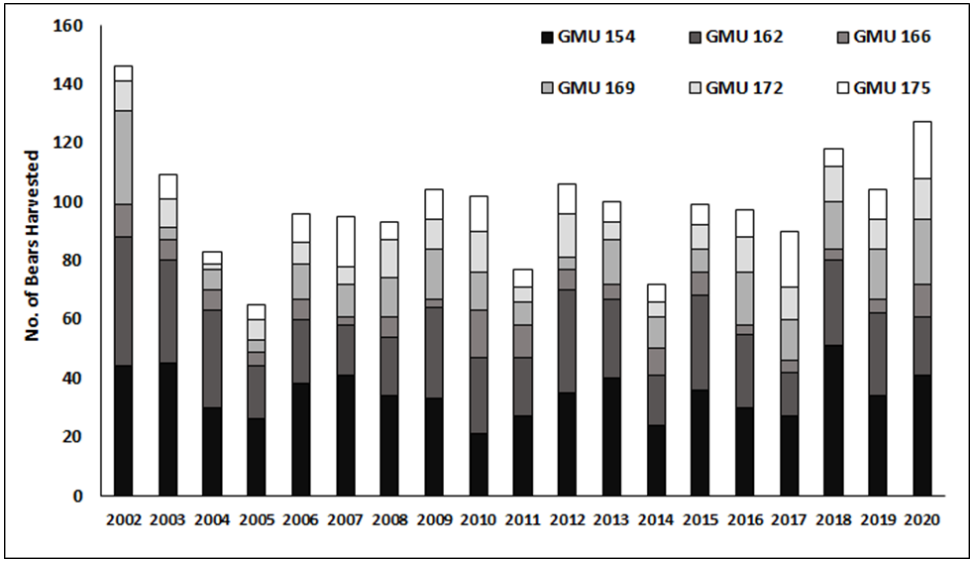
CARNIVORES-WOLVES

- Brief literature review
- Reports on current status and trends since recolonization
- 4 packs, at least 22 individuals
- Unknown what effect wolves are having



CARNIVORES- BEARS

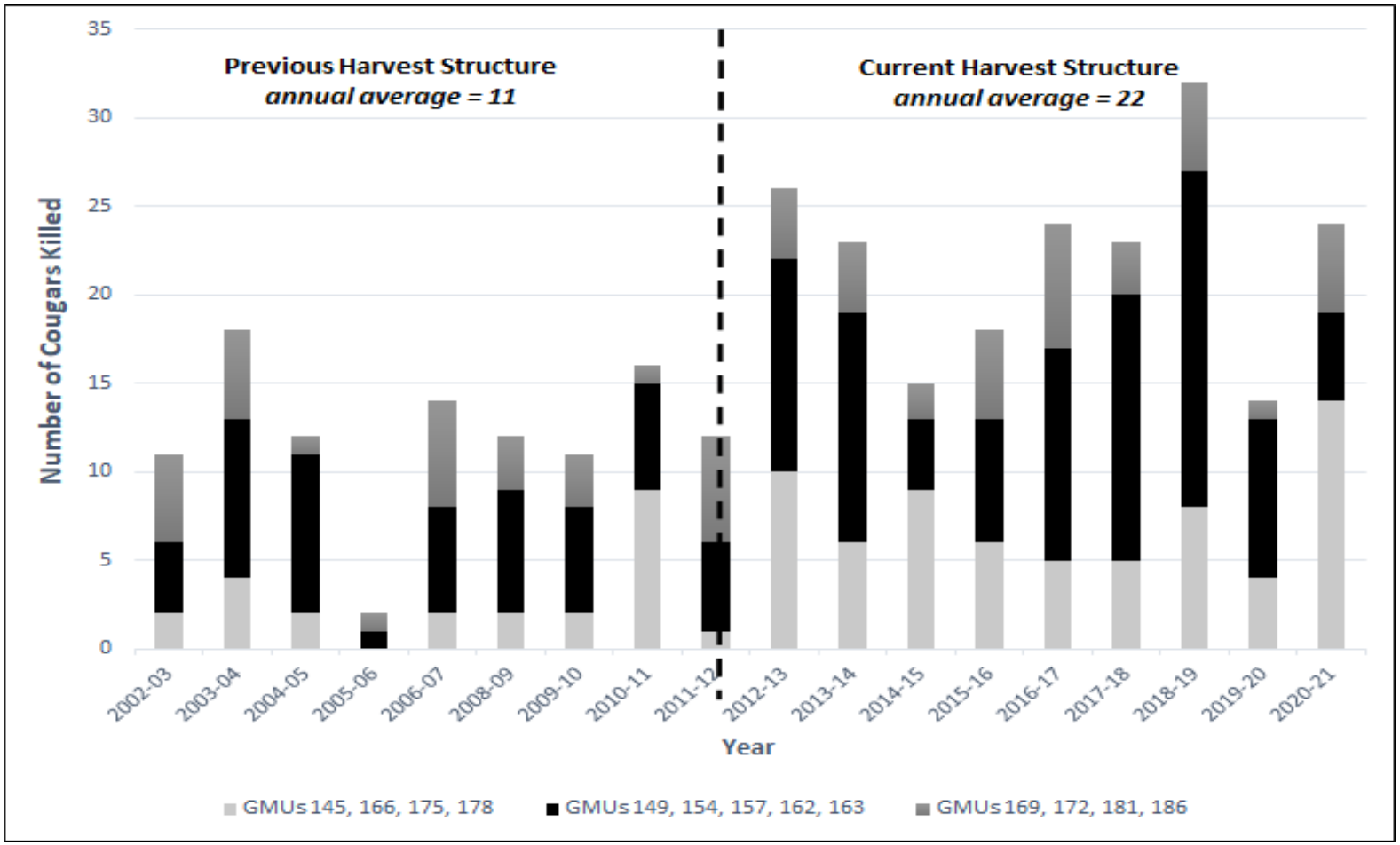
- Brief literature review
- Hunting season and harvest history
- Annual harvest is variable
- Blue Mountains BBMU collectively has highest harvest density
- No current estimates of pop. size or density
- Unknown what effect black bears are having



CARNIVORES-COUGARS

- Brief literature review
- Cite density estimates reported by Beausoleil et al. (2021) and Johnson et al. (2019)
- History of hunting seasons and harvest
  - Cougar harvest has increased since harvest guidelines were implemented
- Cites Clark et al. (2014) that indicates cougars were a limiting factor for elk in Oregon
- Unknown what effect cougars are having

CARNIVORES-COUGARS



Habitat

- Mostly a Literature Review
  - Effects on reproductive performance
  - Importance of forest disturbance (e.g., fire, timber harvest, etc.)
  - Effects of grazing
- Summarized management activities in the Blues since 2000
  - Forest thinning
  - Prescribed burns
  - Weed control

Human Use

- Recreation
  - Little information indicating recreation as a limiting factor in literature
  - Local activities include shed antler hunting, winter recreation, ORV, spring hunting activities
  - No information available to quantify effects
- Development and Land Modifications
  - Minimal and localized effects

Climatic Impacts

- Brief Literature Review
  - Harsh winters, drought, precipitation
  - Effects on body condition, reproductive performance, & survival

- Cite findings of Cook et al. (2013) for elk in Oregon
  - Evidence of nutritional limitations
  - Similar conditions likely in Washington

- Cite findings of Johnson et al. (2019) for elk in Oregon
  - Found correlation between August precipitation and body condition of juvenile elk
  - 30-year average in Blues = 0.697 inches
  - 2017-2020 average = 0.415 inches

Assessment Summary

Elk in 3 core GMUs (162, 166, 175) are exhibiting declines and poor calf recruitment

Disentangling top-down, bottom-up and climatic effects is challenging

- **Human use** is unlikely to be limiting
- **Nutrition** as a function of habitat/climate is potentially limiting
  - Would require intensive multi-year research
- **Predation** is potentially a limiting factor for recruitment
  - Requires quantifying elk calf survival (*initiated)*
  - Contemporary estimates of cougar density would be beneficial, but require multi-year intensive study
  - Contemporary black-bear densities would be beneficial (*initiated*)

PRELIMINARY RESULTS – CALF MONITORING

- 125 calves collared; 2 capture mortalities, 7 dropped collars
- As of November 29th:
  - 11 calves were alive
  - Survival to 150 days (mid November) is estimated at 11%
  - 105 documented calf mortalities
    - 15 unknown, 5 infection, 2 starvation, 4 to be determined, 2 exertional myopathy
    - 77 mortalities are attributed to predation

Predation source	Mortalities	Proportion of predation mortality
Bear	9	0.12
Bobcat	1	0.01
Cougar	54	0.70
Cougar or bear	4	0.05
Coyote	3	0.04
Wolf	2	0.03
Unknown Predator	4	0.05

TIMELINE

- Autumn 2020 – Initiated at-risk assessment
- May 2021 - Initiated calf survival monitoring effort (*ongoing*)
- June 2021- Initiated efforts to estimate black bear density in GMUs 162 and 166 (*analysis pending)*

Anticipated

- By March 2022 - Finalize the at-risk assessment
  - Will include monitoring analyses and management recommendations
  - Briefing to FWC
- Spring/Summer 2022 – Review of assessment and recommendations by public, FWC
- Autumn 2022 - any actionable management measures, if approved, may be implemented

CONCLUDING REMARKS

The Blue Mountains elk population has been below management objective range since 2017

- The Department has reduced antlerless harvest to maximize survival
- Habitat/nutrition and depressed recruitment are potential limiting factors
- Recruitment ratios since 2017 are not at levels that support stability or growth in some GMUs
- Documented calf survival is exceptionally low: 11% at 150 days vs. a typical range of 17-57% for annual survival

Management goal is to use the best available information amidst considerable uncertainty to:

- Develop near-term recommendations that promote calf recruitment levels necessary for population growth (i.e., > 25 calves per 100 cows)
- Develop long-term management recommendations to achieve and maintain population stability within objective range

Questions?